

## Abstract of the Disclosure

Behavior of an electrical circuit can be modeled using a trained neural network. For example, using one or more neural networks, power consumption, including leakage power and switching energy, can be estimated. Also, a profile of current versus time can be generated for the electrical circuit. A hierarchy of neural networks may be used to model the circuit at different levels. In one embodiment, a circuit behavior is modeled using one or more neural networks, cluster values, and cluster probabilities.